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OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER GRAYBILL, DAVID E	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/615,503  
Filing Date: July 13, 2000  
Appellant(s): HASHIMOTO, NOBUAKI

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James A. Oliff  
Michael Britton  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 5-19-4.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

No amendment after final has been filed.

**(5) *Summary of Invention***

The summary of invention contained in the brief is deficient because it does not refer to the specification by page and line number, and to the drawing by reference characters.

**(6) *Issues***

Appellant's statement of the issues in the brief is substantially correct. The changes are as follows: The scope of claim 1 is not limited to a process wherein "the device is removed from the reel to reel transport system."

**(7) *Grouping of Claims***

The rejection of claims 1-9 and 12-20 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7). Further, appellant states, "claims 2-9 and 12-20 stand or fall with claim 1."

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

5,905,633	SHIM	5-1999
5,583,378	MARRS	12-1996

**(10) *Grounds of Rejection***

The following grounds of rejection are applicable to the appealed claims:

Claims 1-4, 9 and 12-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shim (5905633).

At column 1, line 18 to column 2, line 1; and column 3, line 51 to column 5, line 46, Shim discloses the following:

A method of fabricating a semiconductor device comprising: (a) attaching a plurality of semiconductor chips 20 to a tape 60; (b) cutting the

tape to obtain substrates after the step (a) (see column 2, lines 12-35, and column 4, lines 26-38); and (c) providing a plurality of external terminals 50 on each of the substrates, wherein the steps (a) and (b) are carried out in a reel-to-reel transport system; attaching a reinforcing member 10 to the tape in positions corresponding to each of the semiconductor chips, before the step (b); wherein the tape is cut into regions 64 each including one of the semiconductor chips in the step (b); wherein a plurality of device holes 61 are formed in the tape, and leads 11 are formed on the tape, which end portions project into the respective device holes; and wherein each of the semiconductor chips is disposed within a respective one of the device holes, and the electrodes "chip pads" of the semiconductor chips and the leads are bonded in the step (a); wherein each of the semiconductor chips is bonded to the tape in a face-up configuration in the step (a); wherein the electrodes of the semiconductor chips and leads formed on the tape are electrically connected by means of wires 30 in the step (a); attaching a heat radiating member 64 to each of the semiconductor chips; attaching the heat radiating member before the step (b), with a reel-to-reel transport system.

A semiconductor device fabricated by the method as defined in claim 1.

A circuit board "mother board" having mounted the semiconductor device as defined in claim 18.

An electronic apparatus "BGA package" including the semiconductor device as defined in claim 18.

However, Shim does not appear to explicitly disclose providing the plurality of external terminals on each of the substrates after the step (b).

Nonetheless, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed sequence because applicant has not disclosed that, in view of the applied prior art, the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical. Moreover, it is well established that, in a well known process, the order of performing process steps is prima facie obvious in the absence of new and unexpected results. In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). See also Ex parte Rubin, 128 USPQ 440 (Bd. App. 1959); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Claims 1-9 and 12-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shim (5905633) as applied to claims 1-4, 9 and 12-20 supra, and further in combination with Marrs (5583378).

Although Shim does not appear to explicitly disclose providing the plurality of external terminals on each of the substrates after the step (b), at column 9, lines 33-41; column 10, lines 11-49; and column 15, lines 33-45,

Marrs discloses providing a plurality of external terminals 218J on each of substrates 280G after steps of attaching a plurality of semiconductor chips 202H to a tape 299E and cutting the tape to obtain the substrate.

Furthermore, it would have been obvious to combine the disclosure of Marrs and Shim because, as disclosed by Marrs, particularly at column 10, lines 29-32, it would facilitate cost effective and efficient mass production.

Also, Shim does not appear to explicitly disclose wherein the tape is cut into regions each including two or more of the semiconductor chips in the step (b); and cutting each of the substrates into regions, each including one of the semiconductor chips, after the step (c).

Nevertheless, as cited, Marrs discloses wherein a tape is cut into regions 280G each including two or more semiconductor chips, and cutting each of the substrates into regions 270F, each including one of the semiconductor chips, after the step of providing the plurality of external terminals on each of the substrates. In addition, it would have been obvious to combine the disclosure of Marrs with the disclosure of Shim because it would facilitate cost effective and efficient mass production.

***(11) Response to Argument***

Appellant states, "providing the external terminals after cutting the carrier into individual BGA packages, teaches away from the purpose of the invention because the high temperature steps are spread out over the

production process preventing the build up of temperatures in the package.” Although this statement is ambiguous and unclear, appellant appears to suggest that the process of providing the plurality of external terminals on each of the substrates after the step of cutting the tape to obtain substrates somehow teaches away from an alleged purpose of the invention of Shim. This apparent suggestion is respectfully deemed unpersuasive; not only because it cannot be adequately understood and the veracity evaluated, but because a teaching away from a purpose of the invention of Shim would not necessarily render improper the rejection of the claims over Shim.

Also, appellant asserts, “claim 1 does provide new results as compared to the 633 Patent,” and “Thus, the requirements laid out in Burhans are satisfied.”

This assertion is respectfully traversed because mere provision of new results does not satisfy the requirements of Burhans, and does not otherwise overcome the rejection of the claims. To further clarify, the rejection states, “it is well established that, in a well known process, the order of performing process steps is prima facie obvious in the absence of new ***and*** unexpected results,” and Burhans and other case law is cited to support this statement. Moreover, as recited in the rejection, “applicant has not disclosed that, in view of the applied prior art, the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical.”



Relatedly, appellant alleges that the 35 U.S.C. 103(a) rejection over Shim provides no motivation to provide the plurality of external terminals on each of the substrates after the step of cutting the tape to obtain substrates.

This allegation is respectfully traversed because proper rationale is explicitly and clearly provided; namely, "it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed sequence because applicant has not disclosed that, in view of the applied prior art, the limitation is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical. Moreover, it is well established that, in a well known process, the order of performing process steps is prima facie obvious in the absence of new and unexpected results. See MPEP 2144.04, and *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). See also *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930)."

Appellant also concludes, "Thus, because 378 Patent is not analogous as discussed above and is not concerned with a reel-to-reel transport system, it does not consider the invention as a whole."

This conclusion is respectfully deemed unpersuasive. In particular, Marrs is not necessarily relied on in the rejection for a consideration or other disclosure of the invention as a whole. Moreover, the statement, "378

Patent is not analogous as discussed above," cannot be properly evaluated because there does not appear to be a discussion above or elsewhere in the brief that Marrs is not analogous. Furthermore, the allegation that Marrs "is not concerned with a reel-to-reel transport system" is incorrect because, at column 9, lines 38-41; and column 15, lines 41-43, Marrs explicitly and clearly discloses a process comprising a reel-to-reel transport system.

In addition, appellant alleges, "the 378 Patent does not recognize the problems that are solved by the invention."

This allegation is respectfully deemed unpersuasive because Marrs is not necessarily relied on in the rejection for a recognition of the problems that are allegedly solved by the invention. In any case, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. See MPEP 2144 and *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), cert. denied, 500 U.S. 904 (1991).

Appellant also proffers, "If the external terminals are provided after separating the carriers into individual BGA packages, as in the 378 Patent, it would eliminate the need for the metal carrier frame because providing

external terminals is one of the repeated processes that causes the thermal deformation the metal carrier prevents."

This proffer is respectfully deemed unpersuasive because Shim is not necessarily applied to the rejection for the disclosure of a metal carrier frame. Moreover, this proffer is unsupported by proof or a showing of facts; hence, it essentially amounts to mere conjecture. Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (statement in publication dismissing the "preliminary identification of a human b - NGF - like molecule" in the prior art, even if considered to be an expert opinion, was inadequate to overcome the rejection based on that prior art because there was no factual evidence supporting the statement); In re Beattie, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992) (declarations of seven persons skilled in the art offering opinion evidence praising the merits of the claimed invention were found to have little value because of a lack of factual support); Ex parte George, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991) (conclusory statements that results were "unexpected," unsupported by objective factual evidence, were considered but were not found to be of substantial evidentiary value).

Finally, appellant concludes, "Thus, the feature of the 378 Patent of applying the external terminals after cutting the substrate, teaches away from the 633 Patent."

This argument is respectfully traversed because this feature of Marrs does not constitute a teaching away from the disclosure of Shim.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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Art Unit 2827

August 3, 2004

Conferees



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